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# KDC-1028/128/128CR/128/L4 /129/129S/229 KDC-2031SA/SAY/SG/SGY

# SERVICE MANUAL

KENWOOD

Kenwood Corporation

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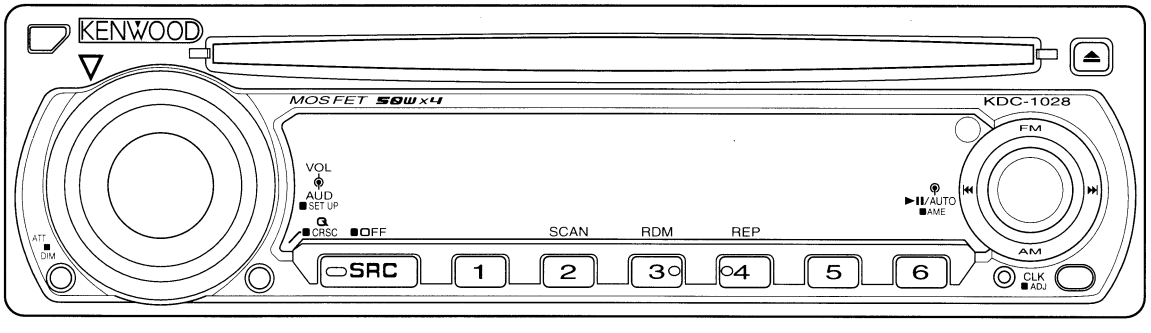
## SWITCH UNIT (X16) TYPE 2

Illustration is KDC-1028



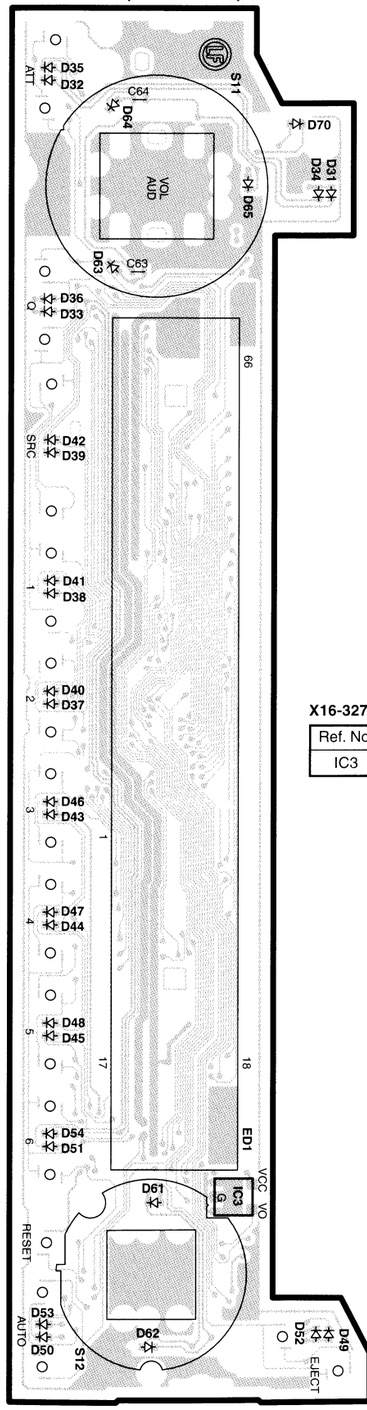

This service manual handles only switch unit (X16) for type 2.
Besides, please refer to the service manual of each model.
Switch unit (X16) has been changed from the following serial number to type 2.
Following system microcomputer (IC1:X34) also changes at the same time as changing switch unit (X16).

| MODEL | SERIAL No. | SWITCH UNIT (TYPE2 UNIT) | ELECTRIC UNIT | MCU IC (IC1:X34) | TDF NAME | TDF PANEL No. |
|---|---|---|---|---|---|---|
| KDC-1028 | 50106801~ | X16-3270-10 | X34-3410-11 | 784225GC283A | TDF-51DB/O | Y33-2260-63 |
| KDC-128 | 50200001~ | X16-3270-10 | X34-3410-12 | 784225GC283A | TDF-51D/O | Y33-2260-64 |
| KDC-128CR | 50200501~ | X16-3270-10 | X34-3410-12 | 784225GC283A | TDF-51DCR/O | Y33-2260-65 |
| KDC-128/L4 | 50200001~ | X16-3272-71 | X34-3410-12 | 784225GC283A | TDF-128/L4O | Y33-2260-11 |
| KDC-229 | 50200001~ | X16-3270-21 | X34-3650-24 | 784225GC283A | TDF-229/O | Y33-2270-65 |
| KDC-129 | 50200001~ | X16-3270-21 | X34-3650-25 | 784225GC283A | TDF-229/O | Y33-2270-65 |
| KDC-129S | 50200001~ | X16-3270-21 | X34-3650-25 | 784225GC283A | TDF-129S/O | Y33-2270-66 |
| KDC-2031SA | T0100401~ | X16-3272-71 | X34-3412-75 | 784225GC283A | TDF-2031SA/O | Y33-2280-66 |
| KDC-2031SAY | T0200001~ | X16-3272-71 | X34-3412-75 | 784225GC283A | TDF-2031SA/O | Y33-2280-66 |
| KDC-2031SG | T0100101~ | X16-3270-21 | X34-3412-76 | 784225GC283A | TDF-2031SG/O | Y33-2280-67 |
| KDC-2031SGY | T0200001~ | X16-3270-21 | X34-3412-76 | 784225GC283A | TDF-2031SG/O | Y33-2280-67 |

This product uses Lead Free solder.

# PC BOARD
# (COMPONENT SIDE VIEW)

**SWITCH UNIT**
**X16-327x-xx (J76-0140-02)**

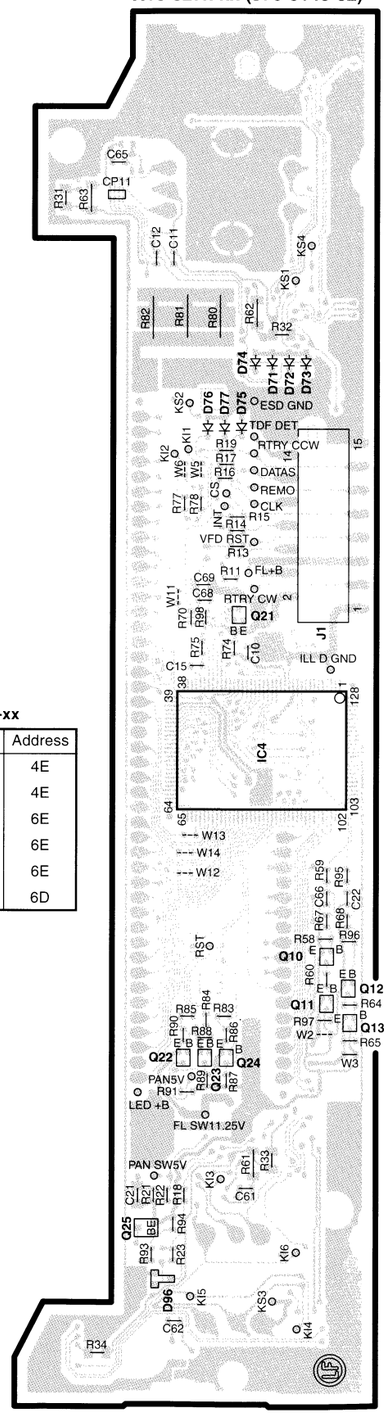



**X16-327x-xx**

| Ref. No. | Address |
|---|---|
| IC3 | 6B |

# (FOIL SIDE VIEW)

**SWITCH UNIT**
**X16-327x-xx (J76-0140-02)**



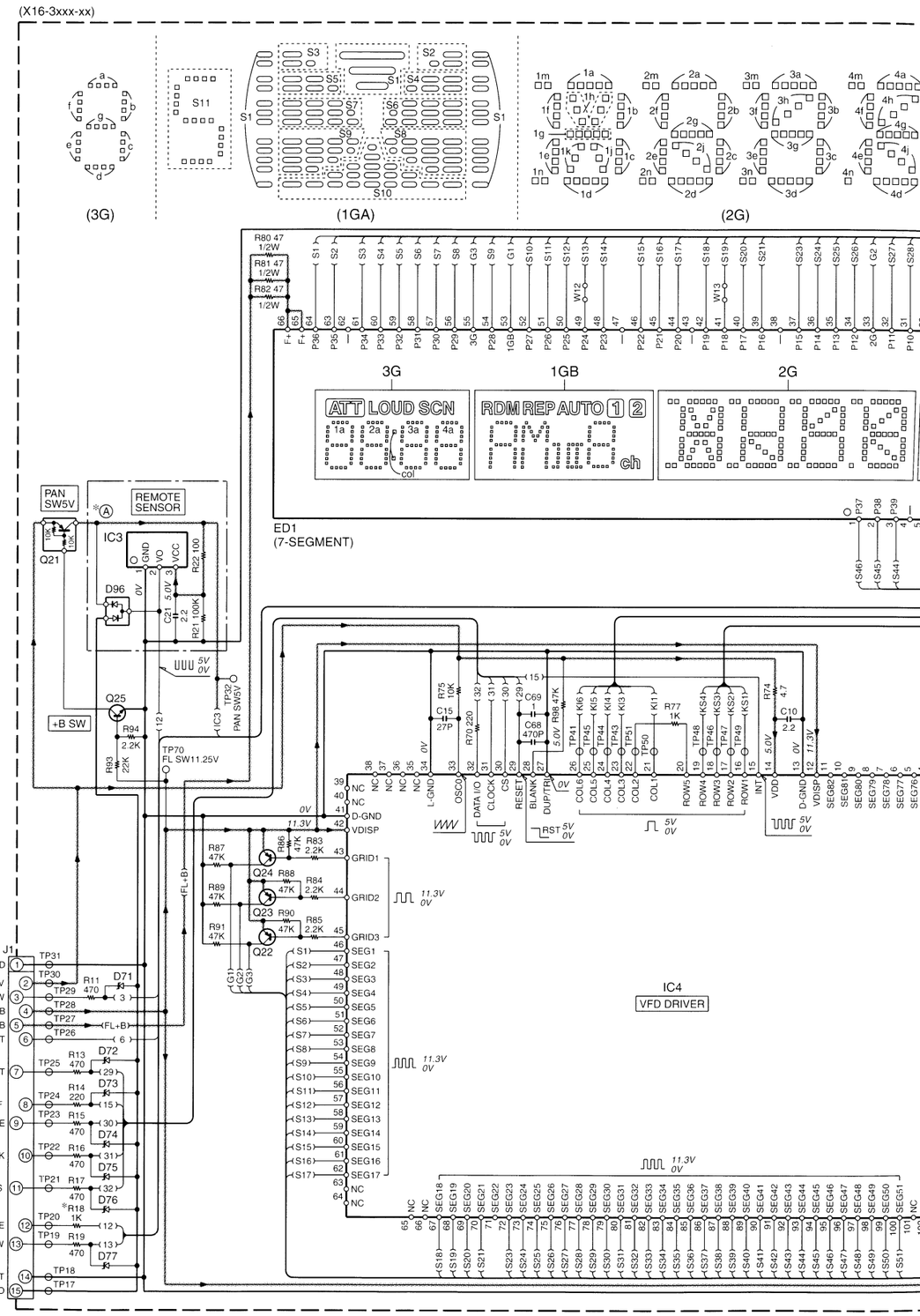

**X16-327x-xx**

| Ref. No. | Address |
|---|---|
| IC4 | 4E |
| Q21 | 4E |
| Q22 | 6E |
| Q23 | 6E |
| Q24 | 6E |
| Q25 | 6D |

Refer to the schematic diagram for the values of resistors and capacitors.

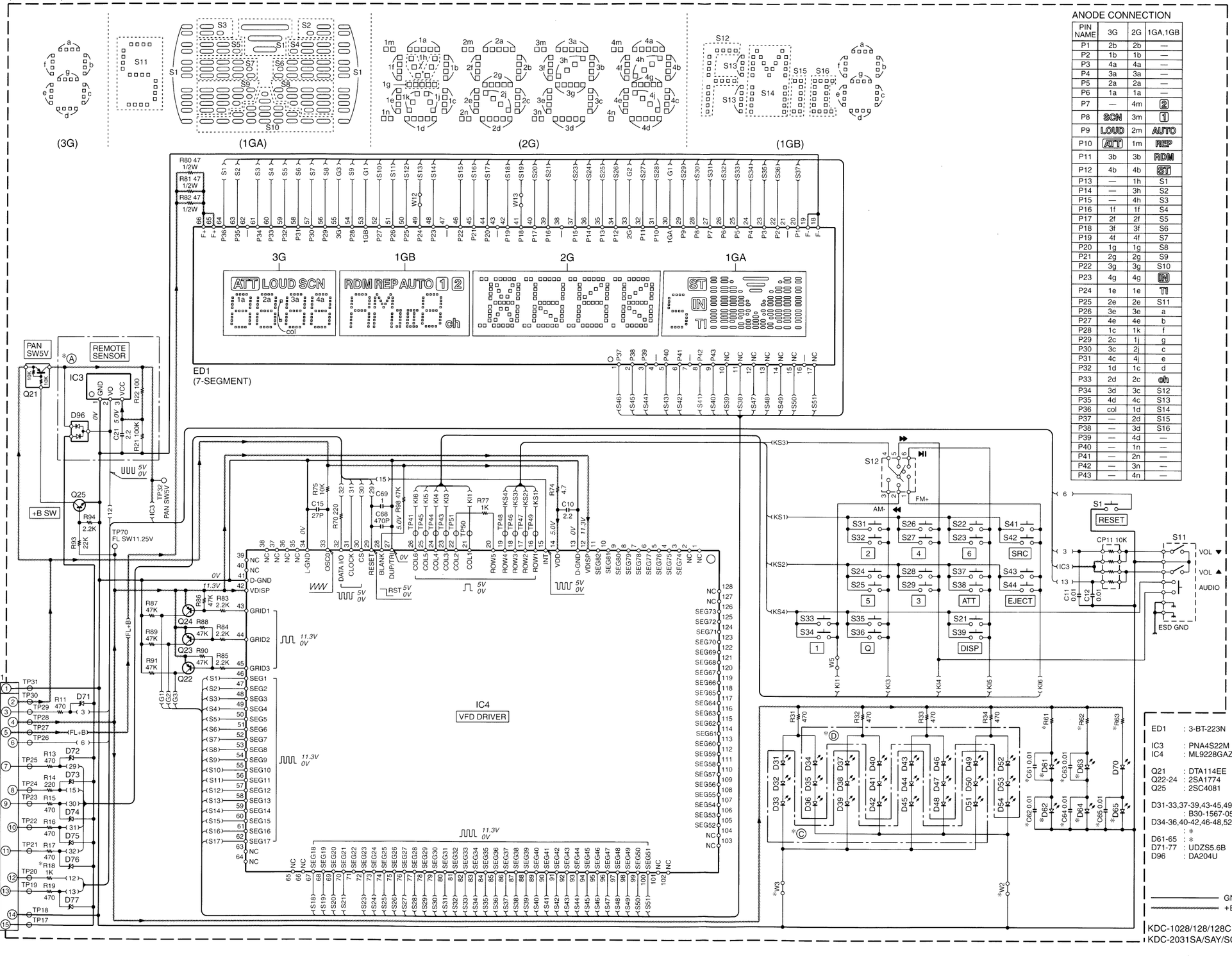






KDC-1028/128/128CR/128/L4/129/129S/229
KDC-2031SA/SAY/SG/SGY

(X16-3xxx-xx)




ANODE CONNECTION

| PIN NAME | 3G | 2G | 1GA,1GB |
|---|---|---|---|
| P1 | 2b | 2b | — |
| P2 | 1b | 1b | — |
| P3 | 4a | 4a | — |
| P4 | 3a | 3a | — |
| P5 | 2a | 2a | — |
| P6 | 1a | 1a | — |
| P7 | — | 4m | 2 |
| P8 | SCN | 3m | 1 |
| P9 | LOUD | 2m | AUTO |
| P10 | ATT | 1m | REP |
| P11 | 3b | 3b | RDM |
| P12 | 4b | 4b | ST |
| P13 | — | 1h | S1 |
| P14 | — | 3h | S2 |
| P15 | — | 4h | S3 |
| P16 | 1f | 1f | S4 |
| P17 | 2f | 2f | S5 |
| P18 | 3f | 3f | S6 |
| P19 | 4f | 4f | S7 |
| P20 | 1g | 1g | S8 |
| P21 | 2g | 2g | S9 |
| P22 | 3g | 3g | S10 |
| P23 | 4g | 4g | IN |
| P24 | 1e | 1e | TI |
| P25 | 2e | 2e | S11 |
| P26 | 3e | 3e | a |
| P27 | 4e | 4e | b |
| P28 | 1c | 1k | f |
| P29 | 2c | 1j | g |
| P30 | 3c | 2j | c |
| P31 | 4c | 4j | e |
| P32 | 1d | 1c | d |
| P33 | 2d | 2c | ch |
| P34 | 3d | 3c | S12 |
| P35 | 4d | 4c | S13 |
| P36 | col | 1d | S14 |
| P37 | — | 2d | S15 |
| P38 | — | 3d | S16 |
| P39 | — | 4d | — |
| P40 | — | 1n | — |
| P41 | — | 2n | — |
| P42 | — | 3n | — |
| P43 | — | 4n | — |

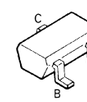
**CAUTION :** For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list).
⚠ Indicates safety critical components.
To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

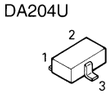
| MODEL NAME | UNIT No. | Ⓒ | Ⓓ | C61-65 | D61-65 | R18 | R61 | R62 | R63 | W2 | W3 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| KDC-1028 KDC-128/CR | X16-3270-10 | YES | — | — | B30-1567-05 | YES | 1K | 680 | 680 | — | YES |
| KDC-128/CR | X16-3290-10 | YES | — | — | B30-1567-05 | YES | 1K | 680 | 680 | — | YES |
| KDC-229 | X16-3270-21 | — | — | — | B30-1533-05 | — | 620 | 560 | 560 | YES | — |
| KDC-129/S | X16-3290-21 | — | — | — | B30-1533-05 | — | 620 | 560 | 560 | YES | — |
| KDC-2031SG/SGY | X16-3312-13 | — | — | — | B30-1567-05 | — | 1K | 680 | 680 | — | YES |
| KDC-128/L4 | X16-3272-71 | — | YES | — | B30-1729-05 | YES | 300 | 300 | 470 | YES | — |
| KDC-2031SA/SAY | X16-3992-71 | — | — | — | B30-1575-05 | YES | 620 | 620 | 620 | YES | — |
| E202 | X16-3270-01 | — | — | — | B30-1575-05 | — | 620 | 620 | 620 | YES | — |
| RDT-101 | X16-3270-02 | — | — | — | B30-1575-05 | — | 620 | 620 | 620 | YES | — |

DTA114EE

2SA1774
2SC4081




DA204U




ED1 : 3-BT-223N

IC3 : PNA4S22M
IC4 : ML9228GAZ-A

Q21 : DTA114EE
Q22-24 : 2SA1774
Q25 : 2SC4081

D31-33,37-39,43-45,49-51,70
: B30-1567-05 (COLOR:RED)
D34-36,40-42,46-48,52-54
: ＊
D61-65 : ＊
D71-77 : UDZS5.6B
D96 : DA204U

GND LINE
+B LINE

KDC-1028/128/128CR/128/L4/129/129S/229
KDC-2031SA/SAY/SG/SGY(OKI) (2/2)

# PARTS LIST

✻ New parts
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

| Ref. No. | Add | New | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| **SWITCH UNIT (X16-327x-xx)** | | | | | |
| D31-33 | | | B30-1567-05 | LED (1608, RED) | KE1 |
| D34-36 | | | B30-1533-05 | LED (1608, PG) | M1 |
| D37-39 | | | B30-1567-05 | LED (1608, RED) | KE1 |
| D40-42 | | | B30-1533-05 | LED (1608, PG) | M1 |
| D43-45 | | | B30-1567-05 | LED (1608, RED) | KE1 |
| D46-48 | | | B30-1533-05 | LED (1608, PG) | M1 |
| D49-51 | | | B30-1567-05 | LED (1608, RED) | KE1 |
| D52-54 | | | B30-1533-05 | LED (1608, PG) | M1 |
| D61-65 | | | B30-1533-05 | LED (1608, PG) | M1 |
| D61-65 | | | B30-1567-05 | LED (1608, RED) | KE1 |
| D70 | | | B30-1567-05 | LED (1608, RED) | |
| C10 | | | CK73GB0J225K | CHIP C 2.2UF K | |
| C11,12 | | | CK73GB1H103K | CHIP C 0.010UF K | |
| C15 | | | CC73GCH1H270J | CHIP C 27PF J | |
| C21 | | | CK73FB1A225K | CHIP C 2.2UF K | K |
| C68 | | | CK73GB1H471K | CHIP C 470PF K | |
| C69 | | | CK73FB1C105K | CHIP C 1.0UF K | |
| J1 | | | E59-0840-05 | RECTANGULAR PLUG (15PIN) | |
| CP11 | | | RK74HB1J103J | CHIP-COM 10K J 1/16W | |
| R11 | | | RK73GB2A471J | CHIP R 470 J 1/10W | |
| R13 | | | RK73GB2A471J | CHIP R 470 J 1/10W | |
| R14 | | | RK73GB2A221J | CHIP R 220 J 1/10W | |
| R15-17 | | | RK73GB2A471J | CHIP R 470 J 1/10W | |
| R18 | | | RK73GB2A102J | CHIP R 1.0K J 1/10W | K |
| R19 | | | RK73GB2A471J | CHIP R 470 J 1/10W | |
| R21 | | | RK73GB2A104J | CHIP R 100K J 1/10W | K |
| R22 | | | RK73GB2A101J | CHIP R 100 J 1/10W | K |
| R31-34 | | | RK73FB2B471J | CHIP R 470 J 1/8W | |
| R61 | | | RK73EB2E102J | CHIP R 1.0K J 1/4W | KE1 |
| R61 | | | RK73EB2E621J | CHIP R 620 J 1/4W | M1 |
| R62,63 | | | RK73EB2E561J | CHIP R 560 J 1/4W | M1 |
| R62,63 | | | RK73EB2E681J | CHIP R 680 J 1/4W | KE1 |
| R70 | | | RK73GB2A221J | CHIP R 220 J 1/10W | |
| R74 | | | RK73GB2A4R7J | CHIP R 4.7 J 1/10W | |
| R75 | | | RK73GB2A103J | CHIP R 10K J 1/10W | |
| R77 | | | RK73GB2A102J | CHIP R 1.0K J 1/10W | |
| R80-82 | | | R92-1245-05 | CHIP R 47 J 1/2W | |
| R83-85 | | | RK73GB2A222J | CHIP R 2.2K J 1/10W | |
| R86-91 | | | RK73GB2A473J | CHIP R 47K J 1/10W | |
| R93 | | | RK73GB2A223J | CHIP R 22K J 1/10W | |
| R94 | | | RK73GB2A222J | CHIP R 2.2K J 1/10W | |
| R98 | | | RK73GB2A473J | CHIP R 47K J 1/10W | |
| W2 | | | R92-1252-05 | CHIP R 0 OHM J 1/16W | M1 |
| W3 | | | R92-1252-05 | CHIP R 0 OHM J 1/16W | KE1 |
| W5 | | | R92-1252-05 | CHIP R 0 OHM J 1/16W | |
| W12,13 | | | R92-1252-05 | CHIP R 0 OHM J 1/16W | |
| S12 | | | S70-0106-05 | TACT SWITCH | |
| S11 | | | T99-0457-15 | ROTARY ENCODER | |
| D71-77 | | | UDZS5.6B | ZENER DIODE | |

| Ref. No. | Add | New | Parts No. | Description | Destination |
|---|---|---|---|---|---|
| D96 | | | DA204U | DIODE | K |
| ED1 | | | 3-BT-223N | FLUORESCENT INDICATOR TUBE | |
| IC3 | | | PNA4S22M | ANALOGUE IC | K |
| IC4 | | ✻ | ML9228GAZ-A | MOS-IC | |
| Q21 | | | DTA114EE | DIGITAL TRANSISTOR | |
| Q22-24 | | | 2SA1774 | TRANSISTOR | |
| Q25 | | | 2SC4081 | TRANSISTOR | |
| **ELECTRIC UNIT (X34-341x-xx/3650-2x)** | | | | | |
| IC1 | | ✻ | 784225GC283A | MCU IC | |

**K** : KDC-1028, KDC-128, KDC128CR
**M1** : KDC-129, KDC-129S, KDC-229
**E1** : KDC-128/L4, KDC-2031SA, KDC-2031SAY, KDC-2031SG, KDC-2031SGY

⚠ Indicates safety critical components.